

Appln. No. 10/775,779
Amdt. dated December 22, 2005
Reply to Office Action of November. 28, 2005

Amendment to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

Claims 1 and 2 cancelled.

3. (previously presented) A composite concrete pavement comprising a surface course of concrete with crushed hard rock as a coarse aggregate and of thickness determined by requirements for abrasion resistance and a subbase or lower layer wherein the coarse aggregate of the concrete of said subbase or lower layer is of small grains crushed limestone finer than 9.5 mm of grading intermediate between the coarse and fine aggregates in the Terminology of ASTM C125 defined as enriched limestone waste, the concrete of said subbase being characterized by specified compressive strength f_c from 1000 to 5000 psi and modulus of rupture (MR) more than 750 psi, respectively.

4. (previously presented) The composite concrete pavement of claim 3 wherein small grains crushed limestone as a coarse aggregate of said concrete of the subbase or lower layer defined as enriched limestone waste is a processed by-product of the manufacture of crushed limestone of regular sizes Nos. 56, 57, 6, and 67, with rated dimensions 25-9.5 mm, 25-4.75 mm, 19-9.5 mm, and 19-4.75 mm, respectively, the physical properties of this coarse aggregate being in accordance with requirements of ASTM C33.

5. (previously presented) The composite concrete pavement of claim 3 wherein the coarse aggregate in the concrete of said subbase finer than 4.75 mm is substantially less than that of the largest size of fine aggregate number 9, according to ASTM C33 and close to, but not exceeding, two-thirds of the total weight of aggregate.

6. (previously presented) The composite concrete pavement of claim 3 wherein the coarse aggregate in the concrete of said subbase finer than 2.36 mm (Sieve No. 8) does not exceed about 10% of the total weight of aggregate.

7. (previously presented) The composite concrete pavement of claim 3 wherein the coarse aggregate in the concrete of said subbase finer than 1.18 m (Sieve No. 16) does not exceed about 7% of the total weight of aggregate.

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8. (previously presented) The composite concrete pavement of claim 3 wherein the coarse aggregate is supplied from a bin in a concrete plant and the amount of said coarse aggregate supplied from said aggregate bin for said subbase finer than 300 μm (Sieve No. 50) does not exceed about 3% of the total weight of aggregate.

9. (previously presented) The composite concrete pavement of claim 3 wherein the coarse aggregate of the concrete of said subbase or lower layer is defined as enriched limestone waste resulting in concrete characterized by compressive strength higher at least by 10% than that of concrete of the same consumption of cement with crushed limestone as a coarse aggregate of grading corresponding to the least size of coarse aggregate No. 89.

10. (previously presented) The composite concrete pavement of claim 3 wherein the coarse aggregate of the concrete of said subbase or lower layer is defined as enriched limestone waste resulting in concrete characterized by compressive strength higher or at least close to that of concrete of the same consumption of cement and twice as high consumption of admixture with crushed granite of regular sizes as a coarse aggregate, while the flexural strength of this concrete is higher than that for concrete of the same consumption of cement with crushed granite of regular sizes as a coarse aggregate.

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11. (previously presented) The composite concrete pavement of claim 3 wherein the concrete mix design of said subbase or lower layer is determined by the value of 28-day modulus of rupture required according to Portland Cement Association Engineering Bulletin EB 109P and equal to the mean value of 28-day flexural strength, the mean value of flexural strength being estimated as $9.42\sqrt{f_c'}$, where f_c' is the mean value of 28-day compressive strength defined according to American building code ACI 318 as required average 28-day compressive strength and equal to $f_c' + 1.34s$ where f_c' and s are specified compressive strength and standard deviation of this strength, respectively.

12. (previously presented) The composite concrete pavement of claim 11 wherein said mix design of concrete of 28-day values of modulus of rupture (MR) equal to 550, 600, 650, 700, and 750 psi can be carried out according to the values corresponding to the 28-day values of specified compressive strength f_c' equal to 3,000, 3,500, 4,000, 4,500, and 5,000 psi, respectively.

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13. (currently amended) A composite pavement comprising a surface course of normal concrete determined by requirements for abrasion resistance and a subbase wherein the coarse aggregate of the concrete of said subbase is of small grains crushed limestone finer than 9.5 mm defined as enriched limestone waste ~~of which the amount of aggregate coarser than 4.75 mm exceeds about one third of the total weight of aggregate.~~

14. (cancelled)

15. (previously presented) The concrete pavement of claim 13 wherein the concrete of said subbase is characterized by specified compressive strength f_c' from 1000 psi to 5,000 psi and modulus of rupture (MR) more than 750 psi, respectively.

16. (new) A composite pavement comprising a surface course of normal concrete determined by requirements for abrasion resistance and a subbase wherein the coarse aggregate of the concrete of the subbase is of small grains crushed limestone finer than 9.5 mm of grading intermediate between the coarse and fine aggregates in the terminology of ASTM C125 defined as enriched limestone waste.